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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/091,508	10/30/1998	JAMES T. CONNORS	68567/PALL	5023

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WASHINGTON, DC 20005

EXAMINER
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OCAMPO, MARIANNE S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 12/12/2002

27

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/091,508

Applicant(s)

CONNORS ET AL.1

Examiner

Marianne S. Ocampo

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nc address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 14-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pall et al. (US 3,344,923) in view of Stoyell et al. (US 5,543,047), Pall (US 4,228,012) and Driscoll et al. (US 4,517,085).

3. Concerning claim 1, Pall et al. (923) disclose a separation element (6,7) comprising two or more hollow pleated pack sections (15 and 16), each pack section (15 or 16) including a corrugated (in other words, pleated) porous (filter mesh) medium having a plurality of pleats and first and second ends, wherein the plurality of pleats includes roots, crowns, legs extending between roots and crowns, an inner periphery at the roots defining an upstream side and an outer periphery at the crowns defining a downstream side, and open joiner caps (18,25) being attached to at least one end of each of the two pack sections (15 and 16), and further the separation

element comprising first and second end caps (upper end cap 17 & lowest end cap 26) attached to the hollow separation arrangement, as in figs. 1 – 3 and 5 and in cols. 2 – 3. Pall et al. further disclose the pleated/corrugated porous medium (forming the hollow pack sections 15 and 16) comprising a polymeric (i.e. polytetrafluoroethylene, polyethylene, etc.) or glass fiber material, as in col. 3, lines 8 – 13 and fig. 5. Pall et al. also disclose the open joiner caps (18 & 25) being adjacent and secured together to coaxially connect the pack sections (15 and 16) and the open joiner caps (18 & 25) into a hollow separation arrangement, as in fig. 1 and cols. 2 – 3.

3. Pall et al. fail to disclose each pleat has a height  $h$  greater than  $(D-d)/2$  where  $D$  is the outer diameter at the outer periphery of the plurality of pleats, and the first and second end caps including (comprising) polymeric or elastomeric material, and one of the first and second end caps (17 and 26) comprises a seal having an outside diameter greater than the largest outside diameter of the hollow separation arrangement. Stoyell et al. teach a separation element comprising at least one hollow pack section (10) comprising a porous medium comprising a polymeric or glass fiber material, and having first and second ends, and having a plurality of pleats (11) which include roots (11c), crowns (11b), legs extending between the roots and the crowns, an inner periphery at the roots defining an upstream side and an outer periphery at the crowns defining a downstream side and wherein each pleat has a height  $h$  greater than  $(D-d)/2$  where  $D$  is the outer diameter at the outer periphery of the plurality of pleats, as in figs. 1 – 4 and cols. 3 – 5. Furthermore, Stoyell et al. teach the hollow pack section/separation element having first and second end caps (40) which comprise of polymeric or elastomeric material (in the form

of fluorinated ethylene-propylene fluoropolymer), as in col. 8, lines 20 – 52. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the separation element of Pall et al. by substituting each hollow pleated pack section in lieu of the hollow pleated pack section of the separation/filter element taught by Stoyell et al., in order to provide an improved separation element having increased surface area which increases the useful life of the filtering/separation element or pack section, as well as having greater resistance (i.e. being resistant to moisture, weathering and others due to its polymeric/thermoplastic or elastomeric constitution) to damage, as in col. 16, lines 49 – 63.

4. Although Pall et al. as modified by Stoyell et al. fail to disclose the length of the hollow separation arrangement formed by the coaxial connection of two pack sections and joiner end caps being at least about 40 inches and the interior diameter thereof is at least about 2 inches, it is considered obvious to one of ordinary skill in the art at the time of the invention to modify the length of the separation element of Pall et al. as modified by Stoyell et al., in such a way that the element has a length of at least about 40 inches and has an interior diameter of at least about 2 inches, as a matter of choice by the user, as well as to increase further the filtration capability of each separation element. Pall (012) teaches a similar separation element to that of Pall et al., in which the separation element comprises at least two or more hollow pleated pack sections being coaxially connected by open joiner caps to form a hollow separation arrangement, and Pall teaches the separation element could be formed by linking up to any desired number (i.e. up to any length which could be at least about 40 inches or more or less depending on the length of

each filter element/hollow pack section) of modular smaller (hollow pack sections) units in order to extend the filter capacity of the separation element (see col. 1, lines 15 – 20 of Pall [012]).

With regards to the interior diameter of each separation element being at least 2 inches, this is also considered a result-variable effective element, in other words, the interior diameter help determine the extent or amount of fluid which can be filtered and allowed to pass through the filter/separation element, and if there are more layers or the thickness of each porous medium forming the separation element is greater, this allows greater fluid filtration capacity at the same time slowing down the filtration rate, thereby allowing only a certain amount of filtered fluid through the filter media, and without changing the dimensions of the housing into which the separation element would be placed into, the only variable would be changed to accommodate a thicker or more layers of filter media would be the interior diameter of the separation element. In the case law, *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984)], cert. Denied, 469 U.S. 830, 225 USPQ 232 (1984), the Fed. Circuit held that where the only difference between the prior art and the claims was a recitation of relative dimensions (i.e. such as the length and interior diameter) of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Here, the examiner considered that the separation element of Pall et al. as modified by Stoyell et al. and Pall would not perform differently than the claimed invention.

5. Pall et al. (923) as modified by Stoyell et al. and Pall (012), fail to disclose one of the first and second end caps comprises a seal having an outside diameter greater than the largest outside diameter of the hollow separation arrangement. Driscoll et al. teach a separation element comprising at least two hollow pack sections (18, 94) wherein each pack section (18) comprises a porous medium (94) and having open joiner caps (20, 64) being attached to at least one end of the hollow pack sections to form a hollow separation arrangement and having first and second end caps (14, 16) wherein one of the first and second end caps (at least end cap 16 is shown in fig. 2) comprises a seal (38) having an outside diameter greater than the largest outside diameter of the hollow separation arrangement, as in fig. 2 and cols. 3 – 4. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the separation element of Pall et al. (923) as modified by Stoyell et al. and Pall (012), by adding the embodiment taught by Driscoll et al., in order to provide an alternative end cap design for the separation element which provides a removable leak-proof end cap-seal arrangement for the separation element, thereby allowing access to the hollow pack sections for either replacement or changing to a new hollow pleated pack once one of the hollow pack sections has reached the end of its useful life.

6. Regarding claim 14, Pall et al. further disclose each pack section (15 or 16) including a core (30 or 31, respectively) disposed along the inner periphery of the pleats, as in figs. 1 and 5.

7. With regards to claim 16, Driscoll et al. further teach the end cap (16) having the seal (38) comprising an open end cap including a substantially cylindrical configuration having an outer periphery and a channel (formed by annular groove 36) circumferentially arranged in the outer periphery thereof and the seal (38) being positioned in the channel (36), as in fig. 2 and in col. 3.

8. Concerning claims 15 and 17, Stoyell et al. further teach the hollow pleated pack section (10) could be formed such that it is free of a core (20), as in cols 8, lines 4 – 11 and 21, lines 26 – 30. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the separation element of Pall et al. as modified by Stoyell et al., Pall and Driscoll et al., by substituting the hollow pack section with a core, with one which is coreless or free of a core, depending upon the direction of fluid flow through the hollow pleated pack sections such as when the flow through the separation element is from inside to outside thereof and in instances when radially inward forces on the separation element is absent or very low, thereby enabling reduction in the weight of the separation element (i.e. lighter separation element), as in col. 8, lines 7 – 11.

9. With respect to claim 18, Stoyell et al. also teach the legs of the pleats (11) are in intimate contact along substantially the entire height (i.e. also known as in “laid over state”) of the pleats (11), as in col. 4 and figs. 2 – 3. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the pleated filter medium/pack sections of Pall et al. as



modified by Stoyell et al., Pall and Driscoll et al., in lieu of the “laid-over” pleated filter arrangement/pack section (10) taught by Stoyell et al., in order to provide an improved pleated pack section/separation element having increased surface area which increases the useful life of the filtering/separation element or pack section, as in cols. 4, lines 22 – 29 and 16, lines 49 – 63.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pall et al., Stoyell et al., Pall (012) and Driscoll et al. (085), as applied to claim 1 above, and further in view of Pall (US 4,033,881).

11. Concerning claim 19, Pall et al. (923), as modified by Stoyell et al., Pall (012) and Driscoll et al., fail to disclose the adjacent joiner caps being welded together. Pall (881) teaches a filter/separation element comprising two or more hollow pleated pack sections (10, 25) being joined by joiner/end caps (16, 17) to form a hollow separation arrangement, wherein adjacent joiner caps (right end cap 16, second end cap 17 attached to right end cap 16) are welded together, as in figs. 2 – 3 and cols. 5 – 6, particularly, in col. 6, lines 28 – 34. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the adjacent joiner caps of the separation element of Pall et al. (923), as modified by Stoyell et al., Pall (012) and Driscoll et al., in lieu of the welded adjacent joiner caps taught by Pall (881), in order to provide an alternative design and improved separation element having joiner caps which are more leak-proof than those having seals/gaskets joining separate joiner caps together, thus

avoiding any contaminated/unfiltered fluid leaking into the cleaned/filtered fluid region of the separation element.

*Response to Amendments and Arguments*

12. Applicant's arguments with respect to claims 1 and 14 - 19 have been considered but are moot in view of the new grounds of rejection. **This action is non-final.**

13. Applicant's arguments filed 9-30-02 have been fully considered but they are not persuasive. In response to the applicants' argument regarding the lack of teaching by the prior art of the length of at least about 40 inches and an interior diameter of at least about 2 inches, the examiner has considered these physical properties (i.e. length and interior diameter) to be variable and result-effective, and can be modified according to the desired results to be achieved by the user. As shown by Pall (012), multiple hollow pleated pack sections to form a longer (which could have any length) separation element has been known in the art and any desired length, by adding a number of modular hollow pack sections to be connected together by the joiner end caps, could be made and is possible in order to achieve a greater filtering capacity. Similarly, if the dimensions of the filter housing could not be altered or is predetermined and could not be changed, and therefore the length of the filter/separation element is thereby limited as well, the only way to achieve a greater filtering capacity is to limit or decrease the interior

Art Unit: 1723

diameter of the filter/separation element up to an optimum value without hindering fluid flow and causing adverse pressure changes within the element to damage the separation element. Other arguments based on the previously applied art have been considered but they are now moot in view of the new grounds of rejection based on the newly applied prior art above.

*Conclusion*

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (703) 305-1039. The examiner can normally be reached on Mondays to Fridays from 8:00 A.M. to 4:30 P.M..

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

16. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*msd*

M.S.O.

December 2, 2002

*Walker*

W. L. WALKER

SUPERVISORY PATENT EXAMINER  
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